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tracts of white pine that represents all that is left of one of the most magnificent pine regions of the continent. The excursion to the island of Mackinac and Sault Ste. Marie after adjournment will be especially attractive to botanists. Most of the prominent western botanists will be in attendance at this meeting, and many others from all parts of the country. No botanist should willingly miss so good·an opportunity to become acquainted with his co-laborers and to obtain the inspiration to be secured through personal associations.

J. C. ARTHUR,
Secretary of Botanical Club of A. A. A. S.

Dr. Franklin B. Hough.—Science, especially botany and forestry, has lost an illustrious worker in Dr. Franklin B. Hough, who died at his residence in Lowville, New York, on the 9th of June, in his 63d year—he having been born at Martinsburg in Lewis County, New York, on the 20th of July, 1822. He practiced medicine in Somerville from 1838 to 1842, and continued to cultivate his natural taste for literary, historical and statistical work. In 1847 he published an account of the flora of Lewis County, which was so well received by the botanists of that day that he received his first scientific honors soon after by being elected a correspondent of the Academy of Natural Sciences of Philadelphia, which has been followed since by his election to some thirty-six other scientific or literary bodies. His statistical and historical labors, especially in connection with his own native State, have been enormous.

Dr. Hough, as a member of the American Association for the Advancement of Science, was a prime mover in the action of that body, which did so much to make the modern phase of forestry a national question; and when, in response to this movement, the national government undertook an investigation of the forestry question, Dr. Hough was placed in charge of the matter under the supervision of the Department of Agriculture. His reports in connection with this are models of pains-taking industry in the collection of facts. It was in just such work that his talent showed to advantage. It was always charming to engage him in conversation in connection with the history of any of our common studies. Anecdotes connected with men and things, with a ready recollection of dates and incidents, would be freely communicated with an easy freshness truly remarkable.

During the winter he was engaged at Albany in drafting, and watching through its various stages, the Forestry Bill which has since become the law of that State. He still contrived to work on other literary subjects that were quite enough for one man's time. It is believed this weakened his hitherto iron constitution, and brought on an attack of pneumonia about the beginning of April. After four weeks he seemed well enough to be removed to his home at Lowville, but only eventually to succumb.—*Gardeners' Monthly.*

Botanical Notes.

Origin of the Lombardy Poplar.—According to Mr. Bossier, a botanist who has lately studied oriental botany, this poplar is a distinct species, which he calls *Populus pyramidalis.* It is believed by the best authorities to have originated in Persia ; some writers, on the other hand, state that it is truly indigenous to Italy, but the evidence, however, we think is strongest in favor of Persia, from whence most probably it was introduced into Italy, where it is now a favorite tree and extensively grown. Lord Rockford has the credit of having imported this Poplar into England, by means of cuttings brought from Turin in the year 1758. The original trees raised from those cuttings are supposed to have been planted at Blenheim, in Oxfordshire.—*Garden.*

Trees of the United States.—There has recently been placed on exhibition, at the New York Museum of Natural History, an almost complete representation of the trees of the United States, between 400 and 500 trunk sections of the different species. These specimens are about five feet eight inches long each, cut in such manner as to display their barks and the transverse and longitudinal sections of the wood. This is done by cutting away one side of each specimen at the top to the depth of one-half the diameter of the trunk and for one-third of its length. One-half of each exposed portion is polished to illustrate the effect of this treatment of the wood, the remainder being left in the natural condition, with the top of the upper divided part finished by beveling. In the case of trees of commercial importance this form of representation is supplemented by carefully selected planks, or by burls, showing better than the logs the true industrial value of the wood. Among specimens of this kind is a plank of redwood (*Sequoia sempervirens*), measuring 8½ feet in width. A species remarkable for slow growth, and which is only 24 inches in diameter, shows an age of 410 years, being the oldest tree in the collection. This is *Picea Engelmanni,* named for its discoverer, Dr. Engelmann, and known also as Engelmann's spruce. Another example of slow growth is seen in *Pinus edulis*, or edible pine, from Arizona, called also nut-pine. The seed of this pine, which resembles a good-sized bean, is used by the Indians for food. A tree of this species which is 300 years old measures only 15 inches in diameter. Another specimen, which is 341 years old, shows a diameter of 37 inches. It is the western shell-bark hickory (*Carya sulcata*), from Allenton, Mo. The same locality is represented by a specimen of *Tilia Americana*, or basswood, which is 40 inches in diameter, and 150 years old.

This valuable collection, numerically exceeding that made in connection with the census reports, includes examples of many curious and interesting species, of which probably the complete natural series could never have been viewed in their native soil by any single traveller, however diligent.

Among the extraordinary specimens is a representative of Texas. This is the *Cereus giganteus*, which resembles a fluted column. It is a plant which can be readily taken all to pieces. Its component parts are in the form of vertical sections of twisting curvatures in the line of their circumference, whereby one portion is fitted exactly to another. They can be separated without the slightest difficulty, in the absence of any heart at the centre for their attachment. The

Washington palm (*Washingtonia filifera*) from Southern California is also curious. The specimen includes the top of the tree, which is severed from the body, and bears its dried and yellow wide-spreading leaves. Its peculiarity is in the ring formations of the trunk, which are almost wholly detached from each other, standing one within another like a succession of forms of bark. They are easily detached from each other.

The cocoanut-tree from Key West and the finely odorous nutmeg-tree from Calitornia are among other specimens of importance. The catalpa is represented as a species most remarkable for its durability. Some of this wood known to have been buried in the earth for seventy-five years has been brought out in perfectly sound condition. Specimens of beautiful woods are seen in the arbutus, sweet bay (*Persea Carolinensis*), Alaska cedar (*Chamæcyparis Nutkaensis*), and the beautifully figured maple burl from Missouri.

With only seven unimportant exceptions, the specific gravity, ash, and fuel value of the wood of every indigeneous aborescent species of the United States have been scientifically determined. The specific gravity was obtained by weighing carefully measured specimens 100 millimetres long and about 35 millimetres square, previously subjected to a temperature of 100° until their weight became constant. The ash is given in percentages of dry wood, which were determined by burning small blocks of the wood in a muffle furnace at a low temperature. The relative approximate full value of any wood is obtained by deducting its percentage of ash from its specific gravity. The correctness of the result thus found is based npon the hypothesis, first proposed by Count Rumford, that the value of equal weight of all woods for fuel is the same, which is considered to be approximately true.—*Scientific American.*

Origin of the Cereals.—Recent numbers of *Naturen* contain interesting papers, by Prof. Schubeler, on the original habitat of some of the cereals, and the subsequent cultivation in the Scandinavian lands and Iceland of barley and rye more especially. It would appear that barley was cultivated before other cereals in Scandinavia, and that the generic term " corn " was applied among Northmen to this grain only, from the oldest times, and that in the Norwegian laws of the seventeenth and eighteenth centuries, wherever reference was made to " *kornskat* "—or standard by which land in the Northlands was, and still is, rated in accordance with the corn it is capable of yielding—the term was understood to apply to barley. Proof of the high latitude to which the cultivation was carried in early ages is afforded by the Egil's Saga, where mention is made of a barn in Helgeland (65° N. Lat.) used for the storing of corn, and which was so large that tables could be spread within it for the entertainment of 800 guests. In Iceland, barley was cultivated from the time of the colonization, in 870, till the middle of the fourteenth century, or, according to Jon Storrason, as lately as 1400.

From that period down to our own times barley has not been grown in Iceland, with any systematic attention, the islanders being dependent on the home country for their supplies of corn. In the last century, however, various attempts were made both by the Danish government and private individuals to obtain home-grown corn in Iceland, and the success with which these endeavors were attended gives additional importance to the systematic undertaking which has been set on foot by Dr. Schubeler and others within the last three years for the introduction into the island of the hardier cereals, vegetables and fruits. As many as 382 samples of seeds of ornamental and useful plants most of which were collected from the neighborhood of Christiania, are now being cultivated at Reykjavik under the special direction of the local government doctor, Herr Schierbeck, who succeeded, in 1883, in cutting barley ninety-eight days after the sowing of the seed, which had come from Alten (70° N. Lat.). And here it may be observed that this seems the polar limit in Norway for anything like good barley crops. The seed is generally sown at the end of May, and in favorable seasons it may be cut at the end of August; the growth of the stalk being often 2½ inches in twenty-four hours. North of 60° or 61° barley cannot be successfully grown in Norway at more than from 1,800 to 2,000 feet above the sea-level. In Sweden, the polar limit is about 68° or 66°, but even there, as in Finland, night frosts prove very destructive to the young barley.

In some of the field valleys of Norway, on the other hand, barley may, in favorable seasons, be cut eight or nine weeks after its sowing, and thus two crops may be reaped in one summer. According even to a tradition current in Thelemarken, a farm there owes its name, *Triset*, to the *three* crops reaped in the land in one year!

Rye early came into use as a breadstuff in Scandinavia, and in 1490 the Norwegian Council of State issued an ordinance making it obligatory on every peasant to lay down a certain proportion of his land in rye. In Norway the polar limit of summer rye is about 69°, and that of winter rye about 61°; but in Sweden it has been carried along the coast as far north as 65°. The summer rye crops are generally sown and fit for cutting about the same time as barley, although occasionally, in Southern Norway, less than ninety days are required for their full maturity.—*Nature.*

The Prickly Pear.—In some recently published Consular reports of the United States the following paragraph on the nopal, or prickly pear (*Opuntia cochinillifera*) occurs:—" The plant abounds in the whole territory of Mexico, Texas, New Mexico, Arizona and California, and extends much farther north. It has flat oval leaves, about six inches long and nearly half an inch thick, covered by long sharp thorns, and bears a fruit of a purple color resembling a pear, filled with numerous small seeds. The plant grows from three to six feet high. Its fruit is eaten freely by cattle, and the leaves, after having been burnt in a fire to get rid of the thorns, are thrown by the cartmen in place of fodder to their oxen by means of a long, sharp-pointed stick, especially when on a road where there is no grass. It also makes an excellent hedge, and once planted will last forever. There is another species of nopal called *nopal de castilla*, which has no thorns, and which is cultivated for the sake of its fruit. This nopal has much larger leaves than the wild species, and grows to the height of ten and twenty feet, and the fruit is much larger. Of this species there are a great many different kinds, each having its distinct name. They are of different colors—green, red, yellow, white and purple. The fruit is delicious, and in the interior of Mexico forms one of the principal means of sustenance for the inhabitants. From the purple tuna a liquid is made called *colonche*, and a sort of sweet cheese (*queso de tuna*). There is a small red tuna growing wild in the mountains near to Zacatecas, called cardona, which is highly prized on account of its fine flavor and digestible qualities, and several cartloads of which are sold daily in Zacatecas. They are sold at six cents for four dozen. Besides serving as food for men and beasts its leaves form the food of the cochineal insect.

The Tomato.—"In the United States its introduction preceded by many years its use as we at present know it. It is said to have reached Philadelphia from St. Domingo in 1798, but not to have been sold in the markets until 1829. It was used as an article of food in New Orleans in 1812. The first notice of it in American gardens was apparently by Jefferson, who notes it in Virginia gardens in 1781. It was introduced into Salem, Mass., about 1802, by an Italian, but he found it difficult to persuade people even to taste the fruit. Among American writers on gardening, McMahon, 1806, mentions the tomato, but no varieties, as 'in much esteem for culinary purposes'; Gardiner and Hepburn, 1818, say: 'make excellent pickles'; Fessenden, 1828, quotes from Loudon only; Bridgeman, 1832, says, 'much cultivated for its fruits in soups and sauces.' They were first grown in Western New York in 1825, the seed from Virginia, and in 1830 were not produced by the vegetable gardeners about Albany; yet directions for cultivating this fruit appeared in Thorburn's Gardeners' Kalendar, 2d. edit., New York, 1817. Buist writes that as an esculent plant in 1828–29 the tomato was almost detested, yet in ten years more every variety of pill and panacea was extract of tomato.' Mr. T. S. Gold, Secretary of the Connecticut Board of Agriculture writes me that 'we raised our first tomatoes about 1832, only as a curiosity, made no use of them though we had heard that the French ate them. They were called love-apples.' D. J. Browne, 1854, describes six varieties and says: 'the tomato until within the last twenty years was almost wholly unknown in this country as an esculent vegetable.' In 1835 they were sold by the dozen in Quincy Market, Boston. In the *Maine Farmer*, Oct. 16th, 1835, in an editorial on tomatoes, they are said to be cultivated in gardens in Maine, and to be 'a useful article of diet, and should be found on every man's table.' In a local lecture in one of the Western colleges about this time, a Dr. Bennett refers to the tomato or Jerusalem apple as being found in the markets in great abundance, and in the *New York Farmer* of this period one person is mentioned as having planted a large quantity for the purpose of making sauce. In 1844 the tomato was now acquiring that popularity which makes it so indispensable at present, writes R. Manning." From this it appears "that the esculent use of the tomato in America does not antedate the present century, and only became general about 1835 to 1840."—Dr. E. L. Sturtevant, in *Amer. Naturalist.*

The Ailantus.—An English exchange says: Many complaints have been made of the overpowering and offensive odor of the flowers of the *Ailantus* trees planted in the streets of Paris and other large cities. According to Mr. E. André, it is only the flowers of the male trees which exhale this unpleasant scent, and he recommends that none but female trees should be for the future planted in public or other places where the peculiar odor of the males might be offensive. This would seem an important point for Americans and others who plant the *Ailantus* largely as a street tree."

The fact pointed out by Mr. André belongs to the domain of ancient history in this country.

A Large Poplar.—In the Botanical Garden at Dijon there is a poplar of colossal dimensions (species not stated) to which Mr. Joly devotes a note in the *Journal de la Société Nationale d'Horticulture.* The height of this tree is 130 feet. Its circumference near the earth is 46 feet, and, at 16 feet above the earth, 21 feet. Its bulk is now 1,590 cubic feet, but six years ago, before the fall of one of the large branches, it was 1,940. From some historic researches made by Dr. Lavelle, and a comparison with trees of the same species in the vicinity, it has been pretty well ascertained that this poplar is at least 500 years old.

Unfortunately, it is now completely hollow up to the point whence the large branches spring. All the dead portions have been removed, and the interior has been filled in with beton.—*La Nature.*

Origin of the Name Tillandsia.—The long moss was named *Tillandsia* because of its aversion to water. Linnæus says he named it after a professor at Abo, who, in his youth, having an unpropitious passage from Stockholm to that place, no sooner set his foot on shore than he vowed never again to venture upon the sea. He changed his original name to Tillands, meaning (in Swedish) 'by land.' Afterwards, having occasion to return to Sweden, he took a circuitous journey of 200 Swedish miles through Lapland to avoid going eight miles by sea.—*Garden.*

Ginkgo.—According to Mr. B. S. Lyman (in *Science*), *ginkgo*, the usual orthography of the popular name for *Salisburia adiantifolia*, is due to a misprint in Kæmpfer's Amœnitates Exoticæ. In order to agree with the pronunciation as heard in Japan, the word (which means 'silver apricot,' or 'silver almond ') should be written *ginkĭyoo* (the *g* hard, and the two *o's* long.) *Ginkiyoo* is the name of the fruit, the tree itself being called *ichoo* (*ch* soft and the *o's* long, as before.) Mr. Lyman says: "The juice of the thick pulp outside the nut is very astringent, and is used in making a somewhat waterproof, tough paper, and a preservative black wash for fences and buildings. The meat of the nut is cooked and eaten."

Botanical Literature.

The Microscope in Botany. A guide for the Microscopical Investigation of Vegetable Substances. From the German of Dr. Julius Wilhelm Behrens. Translated and edited by Rev. A. B. Hervey, A.M., assisted by R. H. Ward, M.D., F.R.M.S. Illustrated